(3) Between C and O.

Equat. Diam.	Polar Diam.
11·49	12·00
12·10	11·75
11·80	
11·64	
Mean 11·76	11·87

(5) Between A and O.

Equat. Diam.	Polar Diam.
11·19	11·91
11·87	11·54
11·83	11·65
11·61	11·43
Mean 11·62	11·63

(4) Between D and O.

Equat. Diam.	Polar Diam.
11·81	11·91
12·02	11·40
11·40	
11·76	
Mean 11·75	11·66

(6) Between B and D.

Equat. Diam.	Polar Diam.
11·67	11·87
12·13	11·53
11·67	11·33
11·46	
Mean 11·73	11·58

Mean of Equatoreal measures	11·704.
,, Polar ,,	11·707.
General mean	11·705 ± 0″·030.

The equatoreal diameter, so called above, is merely the diameter parallel to the celestial equator, and the polar that at right angles to it.

If we reduce the result to distance unity, we get 6″·524, which corresponds to a diameter of 2,290 miles, assuming the solar parallax at 8″·85.

Mr. Libbey and Professor Rockwood also made a few observations: from the measurements of the former we get 11″·56, from those of the latter 11″·76. On the whole, I have thought it best, however, not to incorporate them with my own.

Princeton, N.J.,
1878, November 12.

Note on Some Remarks of Mr. Maxwell Hall on the Opposition of Mars. By David Gill, Esq.

In the last Number of the *Monthly Notices** Mr. Maxwell Hall has objected to the method of observing *Mars* with the heliometer as inferior in accuracy to the method of transits employed by him.

* This paper was communicated in November, along with Mr. Gill's papers which appeared in the last two Numbers of the *Monthly Notices*.—ED.

I do not object to this criticism if Mr. Maxwell Hall can show that his results have smaller probable error and greater freedom from systematic error than mine. When his results are published it will be time enough to examine this question. I concede at once the advantages which the method of Mr. Hall affords in simplicity of reduction; but it appears to me that, when an exceptionally favourable opportunity, like the late opposition of *Mars*, occurs, the question is not what is the *easiest*, but what is the *best* method to observe it.

I object very strongly, however, to the proof which Mr. Maxwell Hall puts forward as to the accuracy of his observations. He contends that his observations are so accurate that by their means he has succeeded in determining the variation of the rate of his clock in short intervals, and makes the rather extraordinary statement that, though the rate of his clock may be relied upon from day to day for uniformity of rate to half a second, yet it varies two or three tenths of a second in intervals of ten or fifteen minutes. I am very much puzzled to find how Mr. Hall arrives at this conclusion and how he distinguishes between errors of observation and errors of clock rate.

The only proof of the supposed errors of his clock rate he finds in the various different values of the difference of R.A. between the same comparison stars obtained from observations at different times. It is obvious that these differences may be caused either by error in clock rate or by errors of observation; and, from the observations only, it seems to me impossible to say definitely to which of the two causes the discordances must be attributed. But, from what I know of clocks and their rates, the probabilities appear to me exceedingly strong that Mr. Hall himself is more likely to have made the errors in question than his clock. With regard to Mr. Hall's remarks which appear to imply that undue time has been occupied in my reductions, I think that the papers I have laid before the Society to-night are their best answer.

On the Observed Errors of Bouvard's Tables of Saturn.
By E. Dunkin, F.R.S.

During the discussion at the December meeting, after the reading of the Astronomer Royal's paper on the approaching conjunction of *Mars* and *Saturn*, reference was made to the large errors of Bouvard's Tables, on which the tabular places of *Saturn* given in the *Nautical Almanac* for 1879 depend. On that occasion I made a remark that the tabular errors of *Saturn*, deduced at Greenwich from recent observations, are not really so large as indicated by a direct comparison of the corresponding places inserted in the *Nautical Almanac* for 1879 and 1880, derived respectively from the Tables of Bouvard and Le Verrier. It